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van Leeuwen, E.A.C.; van Knippenberg, D.

published in

The Journal of Social Psychology
2002

DOI (link to publisher)

[10.1080/00224540209603886](https://doi.org/10.1080/00224540209603886)

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

van Leeuwen, E. A. C., & van Knippenberg, D. (2002). How a group goal can reduce matching in group performanceL Shifts in standards for determining a fair contribution of effort. *The Journal of Social Psychology*, 142, 73-86. <https://doi.org/10.1080/00224540209603886>

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How a Group Goal May Reduce Social Matching in Group Performance: Shifts in Standards for Determining a Fair Contribution of Effort

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ABSTRACT. The authors investigated whether the presence of a specific group goal would reduce social matching (i.e., matching one's own performance to the performance expected from others) by serving as an alternative standard. As predicted, when there was no specific goal, the participants matched their own performance to the performance expected from other group members. When there was a specific group goal, the women no longer engaged in social matching, although that effect did not emerge among the men. Instead, the women's mean personal performance was close to the performance level representing an equal share of the group goal. Moreover, the participants' perceptions of a fair contribution mediated the performance of the men and the women, both in the presence and in the absence of a goal.

Key words: fair contribution of effort, group goal, group performance, social matching

IMAGINE that you are working in a department and that a staff member is about to retire. Some colleagues have initiated a collection among the 20 members of the department to buy a farewell present. It is not yet clear what the present will be, because the present will probably depend on the total amount of money collected. Your office mate just donated \$5. How much would you contribute? And

We wish to thank Eric van Dijk for his helpful comments on an earlier draft of this article and Alice Eagly for her advice concerning interpretation of the results.

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what would your contribution be if you knew that your colleagues were collecting to buy a painting that would cost \$80?

Although the foregoing two questions might elicit different answers, the amount of money that you contributed would likely be guided by what you considered "fair." However, what one considers fair depends on the standard used. In the first situation, the fair contribution might be determined by the amount of money that you expected other staff members to contribute, whereas in the second situation, it might be determined by the amount of money needed to buy the present.

Similar situations may arise when the contribution toward a collective product is not in money, but in effort. When people are working toward a collective product, they often strive to deliver a performance that represents a fair contribution in relation to the total group performance (cf. equity theory; Walster, Berscheid, & Walster, 1973). However, as the foregoing example demonstrates, different standards may lead to different perceptions of a fair contribution of effort (Messick, 1995). For instance, a focus on the observation that some group members are more capable than others may evoke a preference for a contribution (performance) based on the capacity of individual group members. Similarly, the knowledge that some group members may benefit more than others from the final group performance may evoke a preference for an individual performance based on the extent to which one benefits from the final group performance.

Although group members may often consider equality in contributions to be the fairest measure, there are clearly many ways to establish equality. That point was demonstrated in two studies on the allocation of the costs and profits or losses of a collective enterprise (Messick & Schell, 1992; van Dijk, Engelen, van Leeuwen, Monden, & Sluijter, 1999). Using the "flea market" paradigm (Harris & Joyce, 1980), the participants in those two studies read a story about five partners who had run a booth at a flea market, each on a different day. The partners differed in the number of products that they sold and, thus, the amount of money that they earned while working at the booth. After the last day, there were still collective expenses to be paid from the receipts of the enterprise. When the expenses were subtracted from the gross receipts, what remained was either profit or loss. When instructed to allocate the net profit or loss among the five partners, the participants generally expressed a preference for an equal allocation. However, those researchers (Messick & Schell; van Dijk et al.) found the same preference for equality when the participants were instructed to allocate the gross expenses; the result was an unequal distribution of the net profit or loss. The participants' judgments of what constituted a fair distribution thus depended on the dimension that was most salient at the time.

Previous researchers investigating equity in effort have investigated primarily how expectations of other group members' performance may affect one's own performance. In general, when people strive to deliver a fair share of effort, they try to match their performance to the performance expected from other group members—that is, they engage in *social matching* (Jackson & Harkins, 1985;

Kerr, 1983; Paulus & Dzindolet, 1993; Robbins, 1995; Shepperd & Wright, 1989; Williams & Karau, 1991). When people expect low effort from other group members, social matching may lead them to reduce their own effort. As a consequence, the total group performance may be poor. In such a case, striving for equity in effort results in *social loafing*, a reduction in effort that stems from the interdependent nature of group tasks (Comer, 1995; Karau & Williams, 1993; Kidwell & Bennett, 1993; Latané, Williams, & Harkins, 1979; Shepperd, 1993). Because people often (a) expect others to expend less effort on collective than on individual tasks and (b) believe that others generally do not work as hard as they themselves, attempts to match one's own performance to that expected from others often result in a reduction in one's own performance.

Although people may often strive toward delivering their fair share to a collective performance, the salience of a specific standard may determine what personal performance level is actually considered fair. We have proposed that expectations regarding the performance of other group members function as a standard for determining a fair share of effort. In fact, in discussing the results of their study on social matching, Jackson and Harkins (1985) suggested that information about other group members' effort functioned as a standard by indicating how people in general would respond. Thus, group members might have matched because they were conforming to a standard. According to that line of reasoning, standards other than group members' performance may elicit different performance levels. Moreover, because matching may result in a reduction of effort, alternative standards may prove beneficial in the prevention of social loafing.

In the present study, we investigated the extent to which a specific group goal would serve as an alternative standard for determining an individual group member's performance. Without a specific group goal, group members may be likely to match their performance to the performance expected from other group members. When members have information that specifies the total performance desired for the group, their expectations of other group members' performance may become less salient. As a result, group members may be less inclined to match their performance to that of other group members; instead, they may use the group goal as a standard for determining a fair share of effort and may aim to deliver a performance that represents an equal share of the group goal. In both situations, group members strive to produce a fair share of effort. However, the presence of a specific group goal may shift the frame of reference from other group members' efforts to an equal share of the goal. That shift does not mean that expectations of other group members' performance have no impact at all on personal performance in the presence of a specific group goal; rather, the role of those expectations may be limited. A specific group goal may, thus, divert members' attention from social matching and focus their attention on delivering an equal share of the final group performance.

We designed the present study to test the prediction that the presence of a specific group goal reduces social matching because it affects perceptions of

what constitutes a fair level of performance. To test that proposition, we compared the fairness perceptions and actual performance of group members who were given a specific group goal with those of group members who were not given a specific goal. We measured their expectations regarding the performance of other group members (thus providing an even stronger test of the social-matching hypothesis).

Hypothesis 1: Group members' expectations regarding the performance of other group members is positively related to personal performance on a group task.

More important, however, we also predicted that, without a specific group goal, there would be a stronger relationship between members' personal performance and the performance expected from other group members; with a specific group goal, the relationship between members' personal performance and the performance expected from other group members would be weaker.

Hypothesis 2: The absence or presence of a group goal moderates the relationship between members' expectations for other members' performance and their own performance.

Furthermore, we formulated a third hypothesis:

Hypothesis 3: Members' perceptions of a fair contribution to the total group performance mediates their personal performance in both the presence and absence of a specific group goal.

In previous studies, men were often more susceptible to social loafing than women were (see the meta-analysis by Karau & Williams, 1993). In the present study, therefore, we considered the possibilities (a) that men would be more inclined than women to reduce their performance through social matching and (b) that men would be less susceptible to our group goal manipulation (because of the strong tendency to match performance to the performance expected of others). To explore those possibilities, we added gender as a variable to our design.

Method

Participants and Design

The participants were 53 undergraduate students (33 women and 20 men; mean age = 20 years, $SD = 2.79$)¹ from a large Dutch university, who were paid 10 Dutch guilders (approximately U.S.\$4) for participating. We distributed the men and the women equally across two experimental conditions (specific goal

¹According to a meta-analysis by Karau and Williams (1993), students are slightly more susceptible to social loafing than are organizational employees, and social loafing occurs more in the laboratory than in the field. Because the present study focused on the reduction of social loafing by the introduction of a group goal, undergraduate students as participants in an experimental setting allowed for the most appropriate test of our predictions.

vs. no goal). The main dependent variable was individual performance on the group task. We measured expected performance² and submitted it to the analyses as a continuous variable.

Procedure

On arrival in the laboratory, each participant was seated in one of eight separate cubicles in front of a single computer. We used the computer to give all further instructions, to submit questions, and to register the participants' answers. Each cubicle contained a pile of envelopes and a pile of blank paper. We instructed the participants to fill envelopes with sheets of paper for 12 min. The envelopes were consecutively numbered, so the participants were always aware of their performance while they were carrying out the task. We chose that particular task because one may assume that it is not intrinsically motivating and that performance on that task is not affected by differences in strength or endurance. We told each participant that he or she was a member of an 8-person group and that the envelopes filled by all 8 group members would be combined afterwards to produce the total group performance.³

Half of the participants received a specific performance goal; the other half did not. The specific goal consisted of 1,200 envelopes to be filled by all the group members. We introduced the goal as a high, but attainable, target, as demonstrated by pretesting ($N = 36$). We made no mention of a reward for attaining the goal.

We confined the participants to their cubicles for the remainder of the experiment, thus eliminating the opportunity for communication or face-to-face interaction with other participants. After the 12 min allocated for the task, we instructed the participants to put the filled envelopes in a box, to close the box, and to place it on the floor outside the cubicle. The experimenter then unobtrusively counted the number of filled envelopes for each participant, which constituted the dependent measure of personal performance. Meanwhile, the participants had returned to their cubicles to answer a few questions.

We measured expected performance of other group members by asking the participants how many envelopes they believed the other group members, on average, had filled. To assess perceptions of a fair contribution, we asked the participants to indicate the performance level (number of envelopes filled) that they considered a fair contribution to the total group performance (a) for themselves

²We found no main or interaction effects of goal or gender on expected performance ($p > .10$ for all effects). Therefore, we regarded goal, gender, and expected performance as independent from each other.

³Because participants were seated in separate cubicles and did not interact with other group members, they could be induced to believe that they were members of an 8-person group even when fewer than 8 persons were present at that particular time.

as well as (b) for other group members.⁴ Those items were highly correlated ($r = .98$), indicating that the participants did not differentiate between themselves and other group members in their assessment of a fair contribution (e.g., did not judge a lower contribution as fair for themselves but not for others). Therefore, we averaged those two items to form a single scale measuring overall perceptions of a fair contribution. At the end of the experiment, we paid the participants, thanked them for their participation, and fully debriefed them.

Results

Unless otherwise indicated, we analyzed the data by separate analyses of variance (ANOVAs; unique sums of squares), with goal, gender, and expected performance as the independent variables. We submitted expected performance to the analysis as a continuous variable and built a complete design to test all main effects, as well as all first- and second-order interactions. Wherever possible, we have discussed the effects in terms of cell means. When the effect concerned the continuous variable expected performance, we have reported the standardized regression weights (β). In this respect, we coded no goal as 1 and specific goal as 2; for gender, we coded women as 1 and men as 2. We further analyzed significant interactions by testing the hypothesized simple main effects or the independent variables (cf. Aiken & West, 1991).

Performance

An ANOVA on personal performance (the number of envelopes filled) revealed several effects (for the main statistics, see Table 1). First, we found a

TABLE 1
Results of Analysis of Variance for Personal Performance

Source	$F(1, 45)$	η^2
Goal	.09	.00
Gender	3.06	.06
Expected performance	37.22***	.45
Goal \times Gender	7.78**	.15
Goal \times Expected Performance	.04	.00
Gender \times Expected Performance	2.69	.06
Goal \times Gender \times Expected Performance	6.01*	.12

* $p < .05$. ** $p < .01$. *** $p < .001$.

⁴To avoid focusing participants explicitly on delivering a fair contribution to the group performance, we measured the fairness perceptions after, instead of before, completion of the task.

Goal \times Gender interaction. The women's mean performance in the goal condition was higher than their mean performance in the no-goal condition, whereas there was no difference between conditions for the men (Figure 1). Separate tests for the simple main effect of goal for the men and the women revealed a significant difference in performance for the women, $F(1, 45) = 4.42, p < .05, \eta = .09$, but not for the men, $F(1, 45) = 3.36, ns$.

The analysis also revealed a main effect of expected performance. As predicted in Hypothesis 1, the positive standardized regression weight ($\beta = .66$) revealed that the participants' own performance was matched to the performance expected from other group members: As expectations of other group members' performance increased, personal performance increased correspondingly. The Expected Performance \times Goal interaction, predicted in Hypothesis 2, was not significant. Instead, that interaction was moderated by gender, as shown by an Expected Performance \times Goal \times Gender interaction ($\beta = 2.10$). We further analyzed that interaction by conducting separate tests for the simple main effect of

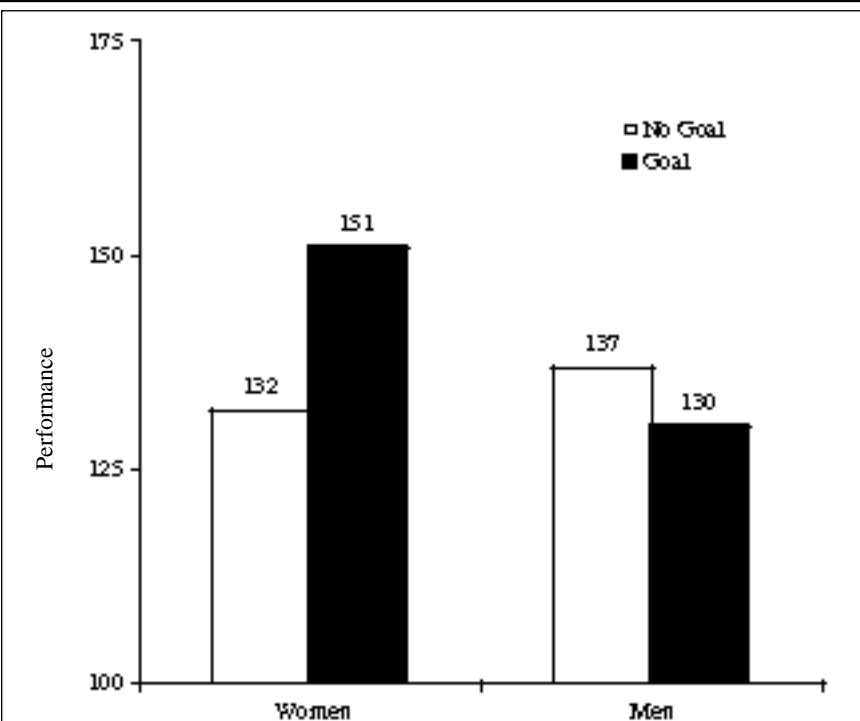


FIGURE 1. Mean performance (number of envelopes filled) of men and women under conditions of a specific group goal or no goal.

expected performance within each cell of the design. On the one hand, the women's expectations of other group members' performance were significantly related to their own performance in the absence of a goal ($\beta = 1.81$), $F(1, 45) = 14.05$, $p < .001$, $\eta^2 = .24$, but not in the presence of a specific goal ($\beta = .51$), $F(1, 45) < 1$, as predicted in Hypothesis 2. On the other hand, the men's expectations of other group members' performance were strongly related to their own performance, both in the absence ($\beta = 1.14$), $F(1, 45) = 8.27$, $p < .01$, $\eta^2 = .16$, and in the presence of a specific goal ($\beta = 2.14$), $F(1, 45) = 23.05$, $p < .001$, $\eta^2 = .34$.

According to the results just noted, both the men and the women matched their performance to the performance expected from other group members in the absence of a goal, as predicted in Hypothesis 1. In the presence of a specific group goal, however, social matching emerged only among the men. For the women, in contrast, expectations of other group members' performance no longer significantly influenced their own performance. Although moderated by gender, the foregoing results provide partial support for Hypothesis 2—that a group goal reduces social matching in group performance.

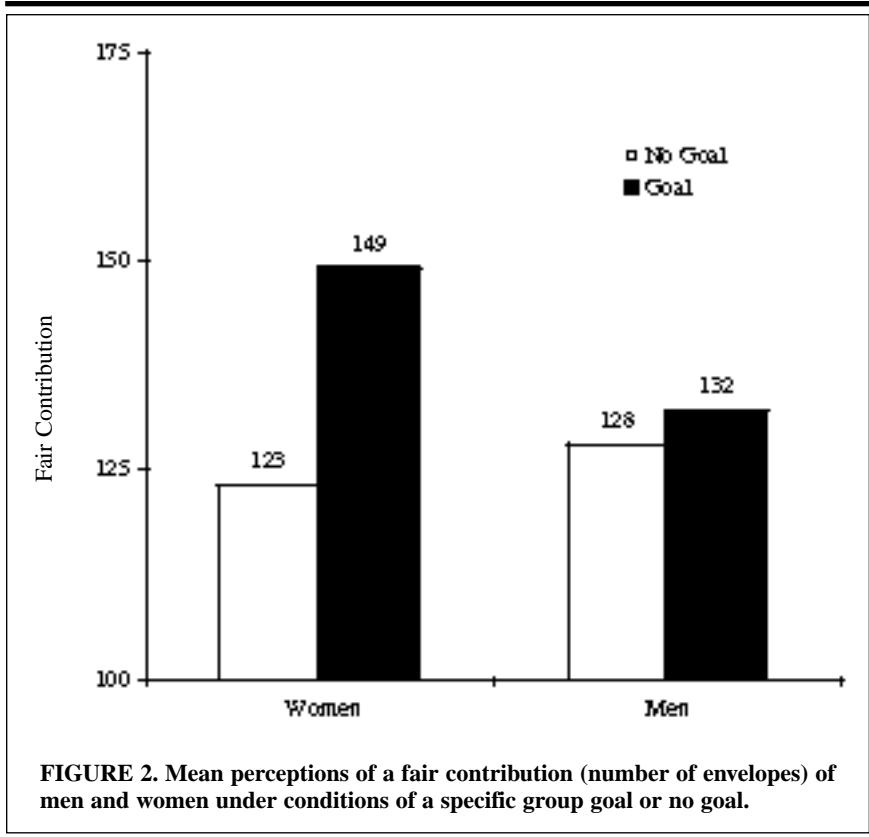
Perceptions of a Fair Contribution

We also tested the extent to which perceptions of a fair contribution to the total group performance were influenced by the goal or by expectations of other group members' performance (for the main statistics, see Table 2). That analysis revealed a significant main effect of goal: When a specific goal was present, the participants reported fair contributions as higher ($M = 143$, $SD = 23.87$) than when the goal was absent ($M = 125$, $SD = 18.07$). However, a Goal \times Gender interaction indicated that the goal manipulation influenced the fairness perceptions of the women but not of the men (see Figure 2). Without a goal, the men and the women hardly differed in their perceptions of a fair contribution. With a goal, the women

TABLE 2
Results of Analysis of Variance for Perceptions of a Fair Contribution

Source	$F(1, 45)$	η^2
Goal	11.98***	.21
Gender	.47	.01
Expected performance	69.58***	.61
Goal \times Gender	10.41**	.19
Goal \times Expected Performance	8.55**	.16
Gender \times Expected Performance	2.69	.06
Goal \times Gender \times Expected Performance	7.31**	.14

** $p < .01$. *** $p < .001$.



considered a fair contribution to be higher than did the men.⁵ According to tests for the simple main effect of goal, that effect was significant for the women, $F(1, 45) = 20.65$, $p < .001$, $\eta^2 = .31$, but not for the men, $F(1, 45) < 1$. Thus, the manipulation of goal affected the women's, but not the men's, perceptions of a fair contribution of effort.

The analysis also revealed a main effect of expected performance ($\beta = .71$), which was moderated by goal, as shown by the Expected Performance \times Goal interaction ($\beta = -.32$). However, the preceding interaction was further moderated by gender, as shown by the Expected Performance \times Goal \times Gender interaction ($\beta = .40$). We, therefore, focused on the three-way interaction for further interpretation. According to tests for the simple main effect of expected performance within each cell, the women's expectations of other group members' per-

⁵In fact, the mean estimate of men was still significantly different from 150, which could be considered an equal share of the group goal, $t(9) = -2.28$, $p < .05$, whereas the mean estimate of women did not differ from 150, $t(16) < 1$, *ns*.

formance were strongly related to their perceptions of a fair contribution when the goal was absent ($\beta = 2.59$), $F(1, 45) = 49.92$, $p < .001$, $\eta^2 = .53$, but not when it was present ($\beta = .46$), $F(1, 45) < 1$. In contrast, the men's expectations of other group members' performance determined their perceptions of a fair contribution in the absence ($\beta = 1.44$), $F(1, 45) = 22.88$, $p < .001$, $\eta^2 = .34$, as well as in the presence of a group goal ($\beta = 1.42$), $F(1, 45) = 17.55$, $p < .001$, $\eta^2 = .28$.

In summary, when a specific goal was absent, both the men's and the women's judgments of a fair contribution to the total group performance seemed to be determined by the performance expected from other group members. When a group goal was present, however, the women's judgments seemed to be influenced more strongly by what they considered an equal share of the group goal, whereas the men's judgments were still related more strongly to the performance expected from others.

Performance Mediated by Perceptions of Fairness

Following Baron and Kenny (1986), we conducted a mediation analysis to test the extent to which perceptions of a fair contribution may underlie personal performance. Mediation occurs when the following three conditions are met: First, the independent variable affects the mediator; second, the independent variable affects the dependent variable; and third, when the mediator is included in the analysis as a covariate, the mediator must be related to the dependent variable, and the effect of the independent variable on the dependent variable must decrease.

With respect to the first condition, the analysis on perceptions of a fair contribution described earlier revealed a significant Expected Performance \times Goal \times Gender interaction. With respect to the second condition, the analysis on performance as described previously also revealed a three-way interaction, the pattern of which was similar to that for the mediator. Thus, the second condition for mediation was also met. To test the third condition, we submitted perceptions of a fair contribution as a covariate to an analysis of covariance, with goal, gender, and expected performance as the independent variables and personal performance as the dependent variable. The covariate was significantly related to performance ($\beta = .69$), $F(1, 45) = 45.79$, $p < .001$. Moreover, with the exception of a main effect for expected performance—which decreased from $\eta^2 = .45$ to $\eta^2 = .12$ but remained significant, $F(1, 44) = 6.22$, $p < .05$ —all other effects were no longer significant, $p > .05$. Therefore, as predicted in Hypothesis 3, perceptions of what constitutes a fair contribution mediated personal performance to a large extent, in both the absence and the presence of a goal.

Discussion

When working with others toward a collective product, group members may strive to deliver a fair share of effort to the total group performance. In the

absence of other cues, expectations of other group members' effort may determine that fair share. In the present study, we investigated whether the presence of a specific group goal would reduce the salience of those expectations and serve as an alternative standard for determining a fair share of effort. As predicted, in the absence of a specific goal, the participants matched their own performance to that expected from other group members. However, in the presence of a specific group goal, the women no longer matched their own performance to that expected from others, although that effect did not emerge among the men. Instead, the women delivered a mean performance close to the performance level that represented an equal share of the group goal. Moreover, the measurement of perceptions of a fair contribution of effort allowed us to demonstrate that, in both the presence and the absence of a group goal, group members aimed at delivering a fair contribution to the group. However, what the participants considered a fair contribution seemed to depend on the standard used. In the absence of a goal, both the male and the female group members considered performance based on the performance of others as a fairer contribution. In the presence of a specific group goal, in contrast, the women considered a performance representing an equal share of the goal as a fairer contribution. With a goal, the women's perceptions of a fair contribution seemed to be determined no longer by their expectations of other group members' performance but, instead, by the group's goal.

Why did the introduction of a group goal reduce social matching for the women but not for the men? Such gender differences are not uncommon in social-matching research. According to a meta-analysis by Karau and Williams (1993), the men were often more susceptible to social loafing than the women were. Surprisingly, however, there was an almost complete absence of explanations for that phenomenon. Data from the present study suggest that the men were more concerned than the women with maintaining interpersonal equality in effort. Perhaps the men had a naturally strong focus on ensuring that their own efforts did not exceed the efforts of other group members. Indeed, in discussing the gender difference in social loafing, Karau and Williams suggested that, when working on collective tasks, men may be more attentive than women to strategic concerns. If so, then even in the presence of a group goal, other group members' performance may have been more salient than the goal itself. As a result, in both the absence and in the presence of the goal, matching may have been the dominant strategy for the men in the present study.

We measured, rather than experimentally manipulated, the participants' expectations of other group members' performance. The measurement of expectations has both a positive and a negative side. Because we measured expectations of other group members' performance, we were able to show the occurrence of social matching even when other group members' performance was not salient. If we had manipulated expectations experimentally, their salience might not only have undermined the demonstration that matching is a default strategy in the absence of alternative cues but might also have functioned as a demand charac-

teristic. Nevertheless, some caution is in order, because the assessment of expectations may have created the opportunity for group members to justify their own performance by stating that they expected the same performance level from other group members. Although the notion of reversed causality cannot be ruled out, it cannot explain the three-way interaction in which social matching decreased in the presence of a goal, but only among the women. Thus, an alternative explanation for the matching effect in terms of self-justification is unlikely.

Karau and Williams's (1993) meta-analysis suggests that, even though social-loafing effects are stronger in the laboratory than in the field, social-loafing relationships in the laboratory typically generalize to field settings. Thus, even though more definite conclusions need replications in the field, one may expect that the present relationships also occur in nonlaboratory settings. One must consider the possibility, however, that such relationships are more pronounced in individualistic Western cultures. According to cross-cultural research, people from collectivist cultures may be less likely than those from more individualistic cultures to loaf on collective tasks (e.g., Earley, 1989). It is possible that the foregoing observation was due, in part, to a stronger tendency for social matching in individualistic than in collectivist cultures, where people may dispositionally focus more on contributing to the group product and less on equality of inputs. That possibility, and potential limitation to the generalizability of our conclusions, provides an interesting avenue for future research.

Earlier, we stated that social loafing may result from group members' striving toward a fair distribution of effort. Indeed, as previous (e.g., Jackson & Harkins, 1985) as well as the present researchers have shown, group members often matched their own performance to the performance expected of fellow group members, even when such matching implied that the total group performance would be poor. Although a focus on fairness may be noble, the resulting decrease in group performance may not be the desired outcome. However, it appears that the present group members often reduced their own performance, not because they did not care about the consequences, but because they seemed to have little alternative in their desire to achieve equity. Therefore, in many situations, social matching may be the result of a lack of alternative guidelines for personal behavior.

On the practical side, the suggestion that social matching results from a lack of alternative guidelines implies that information indicating the fairest performance level for an individual group member may be useful in preventing social loafing. Alternatively, the tendency toward social matching may enhance, rather than reduce, performance—that is, when one expects high performance of other group members, the motivation to match one's own behavior to that of other group members may result in higher personal performance. Thus, in situations in which social matching is salient, the suggestion that other group members are performing well may improve rather than reduce one's performance; at the very least, such a suggestion may prevent social loafing.

Our operationalization of an alternative standard for performance (i.e., other than the performance expected from others) as an explicit group goal provided an interesting link with the literature on goal setting as a performance-enhancing technique (Locke & Latham, 1990). The finding that explicit performance goals may enhance performance is robust in performance research and has emerged for groups as well as for individuals (see O'Leary-Kelly, Martocchio, & Frink, 1994, for a meta-analysis of group goal-setting studies). An implication of the present findings is that group goal setting may, in part, enhance performance because it may reduce downward social matching.

Although a specific group goal reduced social matching, we used the goal to demonstrate the broader suggestion that the mere provision of an alternative standard alters perceptions of a fair contribution of effort. Future researchers may investigate the extent to which other cues elicit the same results. Of particular interest in that respect are the effects of differences in individual capacity or in the extent to which group members may benefit from the final group performance. In addition, future researchers may shift the focus from the effects of expectations of other group members' performance on personal performance to the circumstances in which those expectations play a more or less important role, given the presence of other cues.

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Received June 1, 1999

Accepted September 21, 2000